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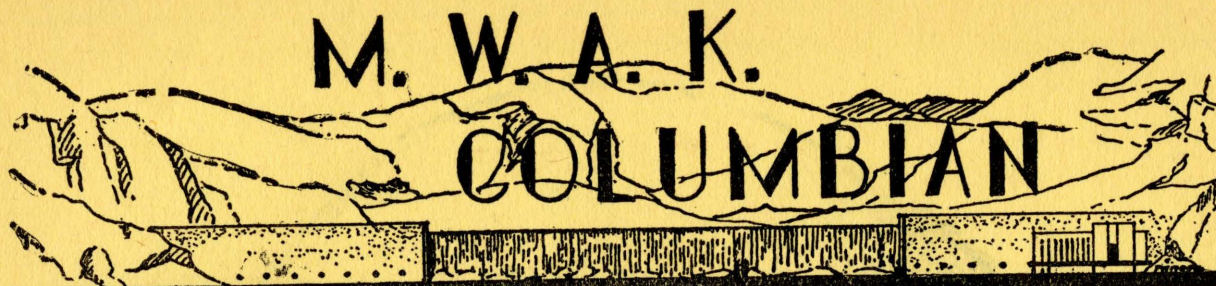
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Vol. 30
SAFETY DEPARTMENT

MASON-WALSH-ATKINSON-KIER CO.
M. Pate, Draughtsman—Editor
BUILDERS OF COULEE DAM
Safety Engineer

MASON CITY
WASHINGTON July 24, 1936

SPECTATORS VIEW COMPLETED DAM PICTURED IN ACTION ON SCREEN--

SPILLWAY BUCKET REQUIRED 18 MONTHS FOR DESIGN, ENGINEER EXPLAINS

One million cubic feet of water per second pouring over the spillway and boiling over the bucket of the Grand Coulee dam-----

One half-million feet of water per second sweeping through concrete channels on the west side-----

These two pictures of the Grand Coulee dam were made visual to an unusually large turnout at the Paul Bunyan club meeting Monday night.

The one million feet represent a thousand year flood--a high flood that may occur once in one thousand years. Spillway provisions will take care of that.

The one-half million feet represent a five year high. The diversion program will occupy only one year of consideration.

Explanations came from Jacob E. Warnock, designing hydraulic engineer from the Denver office of the bureau of reclamation. His subject was "Hydraulic Conditions As They Affected the Grand Coulee Dam." Motion pictures and slides showed the dam in action.

The first and major problem, Warnock explained, was that of conditions facing ultimate development. In order to control 32 million horse power, the design of the spillway occupied much of the time of designers.

The means of surmounting problems facing designers were through the building of models of the dam, exact reproductions and in exact scale, and to confront them with all water conditions which had to be

reckoned with in the 4300-foot dam. The designers were so exacting that 18 months were required to design the bucket and the 75 different combinations demanded. As many as 65 men were employed in two designing departments.

"The only source for much of the information for the dam is through these models," said Warnock, "and they are often one way of saving money--\$2,850,000 dollars in one instance here."

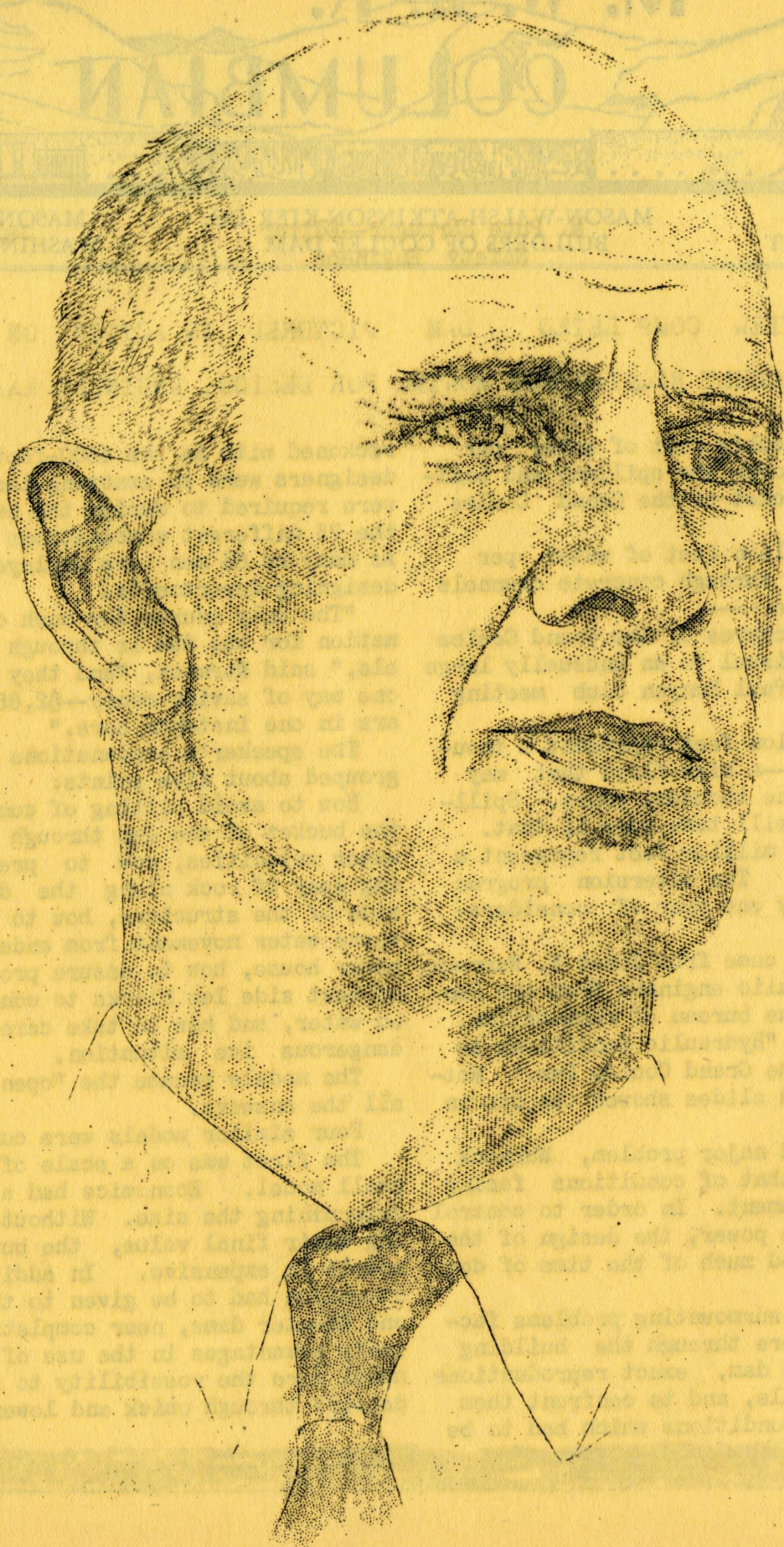
The speaker's explanations chiefly grouped about five points:

How to avoid pitting of concrete in the bucket of the dam through control of water velocities, how to prevent washing away of rock along the downstream side of the structure, how to keep transverse water movement from endangering the power house, how to assure proper ability of west side low blocks to conduct diverted water, and how to take care of any dangerous ice situation.

The models became the "open sesame" to all the answers.

Four similar models were considered:

The first was on a scale of 1:184, a small model. Economics had a place in determining the size. Without considering their final value, the building of models is expensive. In addition, much attention had to be given to the Norris and Wheeler dams, near completion. Definite advantages in the use of the small model were the possibility to study many designs through quick and lower expense



LINDOMAR

C.M. COLE

C. M. Cole, assistant field engineer for the Columbia Basin project of the Reclamation Bureau, had his birthplace at Big Rapids, Michigan. After first attending Cornell university, he received his bachelor of science degree from the University of Washington in 1906. His next five years were with Stone & Webster company in Seattle on the design and inspection of power plant and street railway projects. The succeeding two years were with the Los Angeles railway company as inspector on construction of reinforced concrete shop buildings, Mr. Cole then became assistant manager for National Electric works of Los Angeles, the manufacturer of fire alarm apparatus; and technical engineer for Cadillac Motor Car company, Los Angeles.

Succeeding positions for Mr. Cole from 1916 to 1922 were: resident engineer on concrete construction, Snohomish county, Washington; engineer, Portland Cement association, Seattle; deputy county engineer, Yakima county, Washington; maintenance engineer of the central part of the state for the Washington Highway department, and construction engineer for the Hartford & Eastern railroad near Seattle.

In 1922 Mr. Cole returned to Stone & Webster company as office engineer on the Baker River project and supervising engineer on the erection of buildings in Seattle. With the beginning of work on the Columbia river, Mr. Cole became field engineer. In 1934 he took over his position for the Columbia-Basin project.



The lady purchased a Louis XIV bed and when it was delivered found it was an inch too short for her husband, so she returned it with the following instructions:

"The Louis XIV bed I bought from you is an inch too short for my husband. So please send me a Louis XV."

-oOo-

Sign on a boathouse: "Trip around the lake--adults, 25¢; children thrown in free."

-oOo-

Negro judge: "Are yo' guilty or not guilty?"

Prisoner: "Not guilty."

Negro judge: "Then, what are yo' doin' here wastin' my time?"

-oOo-

ADVICE TO MOTORISTS: KEEP THE MOTOR LUBRICATED BUT KEEP THE DRIVER DRY.

-oOo-

"Red": "Waitress, all I want for breakfast this morning is two soft-boiled eggs, a cup of coffee and a few kind words."

The waitress returned with his order, whereupon "Red" said: "Well, here are the eggs and the coffee, but where are the kind words?"

Waitress: "Don't eat them eggs."

-oOo-

IF YOU SEE A POSSIBLE CAUSE FOR AN ACCIDENT AND DO NOTHING, YOU HAVE FAILED YOURSELF AND YOUR FELLOW WORKMAN.

-oOo-

"What's your hurry?"

"I've got a date with a chiffonier and I'm late."

"A chiffonier? Say, do you know what a chiffonier is? It's a classy dresser with drawers."

"Well!"

-oOo-

"Father, may I go out and stump?"

"Go, and good luck be with you; Keep the partisans on the jump

But don't go near the issue."

-oOo-

How to get rid of spots on a dining room rug-----

Put the rug in the living room.

How to take out a 10-spot-----

Try finessing with the jack.

How to open a can of sardines without a key-

Use an acetylene blow torch.

How to kill moths-----

Set the house on fire

(the moth in the flame, you know)

How to get rid of mice-----

Set one of these new-fangled mouse traps and they'll die laughing.

-oOo-

"I'll be frank with you," said the young man. "You're not the first girl that I've kissed."

"I'll be equally frank. You've got a lot to learn."

-oOo-

IT WAS SO QUIET IN TOWN LAST THURSDAY WE COULD HEAR OUR NOTES DRAWING INTEREST AT THE BANK.

-oOo-

"I had a horrible nightmare last night," said one old maid to another. "There was a man chasing me, and chasing me, and chasing me---but he never caught me."

-oOo-

"Did you ever do a good day's work in your life?"

"Do you mean all together or just at one time?"

-oOo-

IS IT TRUE MAN, UNLIKE THE ANIMAL,
PROFITS FROM MISTAKES OF OTHERS

-oOo-

"She turned off all the lamps 'cept one funny little green table light."

"Then what happened?"

"Well.....I've driven automobiles too long not to know what a green light means."

-oOo-

Manager: "Where in the dickens is the India Rubber Man?"

Clown: "The Strong Man made a sling-shot out of him."

MODELS

(Continued from Page 1)

changes. This smaller model showed what to consider.

Final tests on larger models only brought out problems more clearly. Because of the unusually large amount of water to pour over the spillway, a tailwater curve showed the necessity of a bucket. Visual tests showed that this called for a dentated lip--a series of concrete blocks at the bottom of the bucket to break up velocity.

The bucket is the curvature of the downstream edge of the dam in the spillway section and is made up of blocks H, I, and J.

The test for water action, as illustrated Monday night, was through use of a glass panel in the model. This showed that air was coming from the dentates and also showed the existence of a vacuum.

"A vacuum is poison," Warnock emphasized, "especially if it fluctuates, because the result is capitating or pitting of the concrete. When the air and water are driven into the concrete and are released, the sudden expansion which accompanies the vacuum tends to pop off the concrete."

The second model was to the scale of 1:40. This was large enough for the installation of pressure gauges. The vacuum was worse than anticipated.

The third model, the last in the original plan, was 1:15 and was completed last spring. This was large enough to show the action of the prototype or the completed dam. By stepping up consideration of model sizes, this would mean that the prototype itself would be nothing more than a 1:1 model.

Although hydrologists said there was no possibility of ice passing over the spillway, the 1:15 model faced the ice conditions. Geological explanations were that ice behind the dam would melt before the reservoir would fill, but designing engineers said, "Suppose the reservoir were already full?"

So the dentates were eliminated. In addition to that, the original 30-foot radius of the bucket was extended to 50. The 50-foot dissipated the water energy and meant the elimination of a circular

roller of water which would not dissipate the energy of the water. The vacuum disappeared.

The reliability of the model is measurable. Velocity of 133 feet per second in the model for tailwater compared with 141 feet actually in the completed dam.

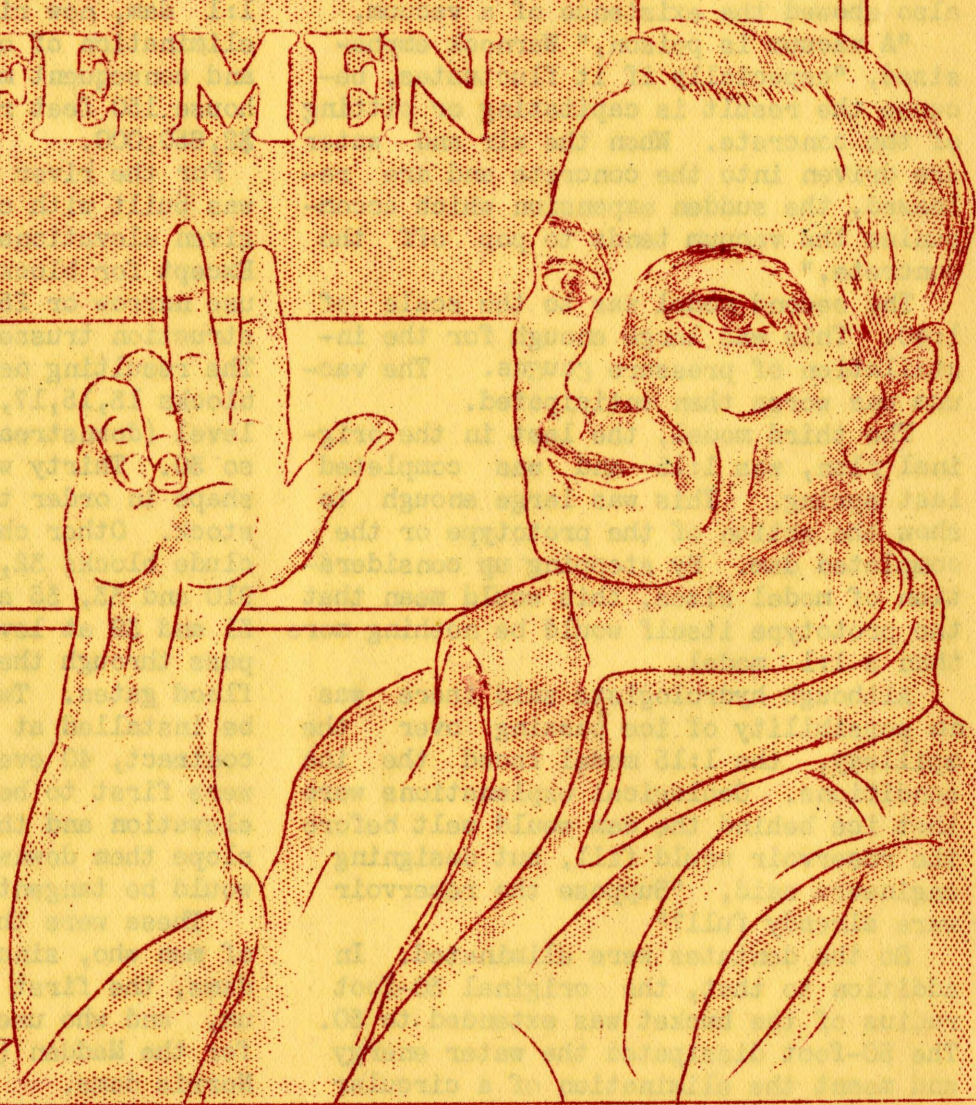
The final choice of the bucket meant the elimination of a design based on a sound principal. This was a parabolic or outward curve on the downstream face and ending in a 4:1 upward tip or toe. This plan would not work because the water washed out everything below the dam, whereas with the bucket there would be a slight back flow which would contribute to the stability of the huge structure.

A later finding was a transverse wave traveling against the power house. This brought plans and construction of a 60 to 70-foot-high training wall for the 1:1 dam, now rising at block 31; the elimination of one of the 12 flood gates and consequent moving of the west power house 150 feet riverward at a saving of \$2,850,000.

For the river diversion another model was built with contraction joints at given elevations for vital combinations. Except for block 30 it was necessary to use narrow or 25-foot blocks because construction trusses were on other blocks. The resulting determination was to leave blocks 13, 15, 17, 23, 25 and 29 at the 950 level (downstream trestle level) and also 30. Thirty would be low and odd in shape in order to keep below the penstock. Other channels for diversion include blocks 32, 34, 36 and 38 at level 910 and 33, 35 and 37 at 950, with both 31 and 39 at level 1000. Water would pass through these openings and through flood gates. Twenty flood gates will be installed at level 935 in the present contract, 40 eventually. The outlets were first to be horizontal at the 935 elevation and then came the decision to slope them downward so the trajectory would be tangent to the radius.

These were the decisions of a group of men who, since 1930, have studied 20 dams, the first of which was the Cle Elum, and who used as base models those for the Madden (Panama), Wheeler and Norris dams.

It is GOOD
to have a JOB
in a SAFE place
and work with
SAFE MEN



WRITE YOUR OWN DEATH NOTICE

The disadvantage of a man's writing his own obituary for the newspapers is evident. So many people are eligible because of possible accidents that editorial rooms would be flooded with death notices.

The Tulsa Tribune of May 29, however, considered the advantages-----

"Memorial Day Celebrators:

"The Tribune requests that persons who intend to mix liquor with automobiles in Memorial Day celebrations kindly leave typed obituaries and photographs or one column cuts with the city editor before beginning the day's observance. The clearing of the accident stories thus will be facilitated for the city news staff."

The suggestion well applies to any day, any place, any risks to life and limb. It might well even be taken literally.

But how much better it would be on this job to let obituaries take their natural place with old age only.

-oOo-

MWAK-ERS MAKE OLYMPICS

Three of the eight composing the rowing crew for the United States in the Olympic games in Germany saw service in the ranks of the MWAK beginning July 10, 1935. The trio, each weighing 185 pounds, are from the University of Washington and Seattle and were employed here as jack-hammermen.

They are John G. White, 20, six feet two inches, stroke No. 4 in the shell; Charles W. Day, six feet two, No. 2, and Joseph Rantz, six feet three, No. 7. Day returned to school last December. The other two left for Seattle in September.

MASON CITY —

RECREATION HALL

Coollest Recreation Center in the Area

Cards	Cigarettes	Candy
Beer	Games	Pool
Kodak Films	Billiards	Post Cards

"You'll Meet All Your Friends Here"

BELIEVE IT OR NOT--

But 8500 sacks or 799,000 pounds of cement were forced into rock under variable air pressures last Saturday to grout one C hole and to smash by 122,000 pounds the amount listed for the high of the day before.

C holes have a minimum diameter of 1 7/8 inches and an average depth of 75 feet. They are used to carry cement and water to seal crevices deep into rock.

While working on the high-mark grout hole, a shift record shot upward to bring a two-day smile to the face of Foreman "Tiny" Allison, of the day relief gang. The high of 3470 sacks supplanted the former high of 1970.

Four shifts were necessary to seal the grout hole.

-oOo-

ENOUGH RATTLES FOR ONE BETSY

Betsy has nine rattles.

Languidly reposing inside a glass cage, the rattlesnake is a center of attraction in the office of O. G. F. Markhus, assistant engineer for the local U.S.B.R.

"Visitors respect the fact that she's inside the glass," said Markhus, "Few have seen a rattlesnake, but they wonder why Betsy isn't as large as a diamond - back."

Betsy, whose name might have been Bill, was discovered on Stevens street in Government Camp by Pat O'Mally. Final disposition of her is not yet determined.

-oOo-

KEEP YOUR EYE ON WHAT YOU'RE DOING

-oOo-

One of the shovels that scoops up five yards at a time weighs 185 tons.

-oOo-

SAFETY ... is our slogan too!

Be Careful....on the Job

Be Safe....on the Road

Equip your car with dependable tires
at competitive prices

Mason COLUMBIA City
GARAGE

MASON CITY THEATRE



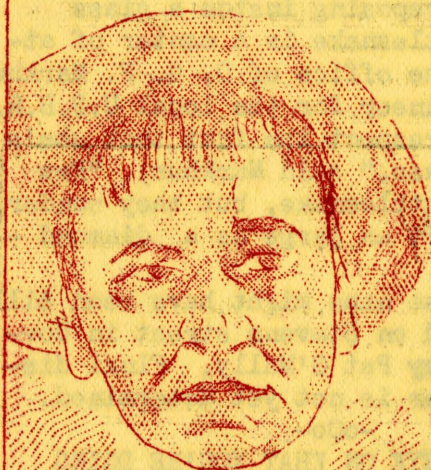
MARY ASTOR



MELVYN DOUGLAS

AND SO THEY
WERE MARRIED

FRI SAT

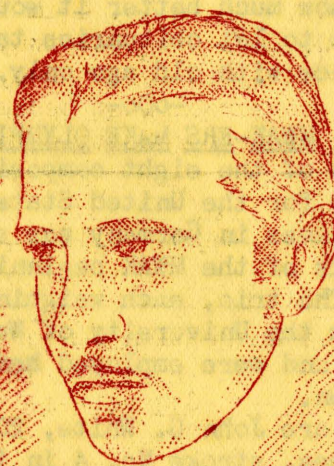


Wallace
BEERY

THREE GREAT STARS
TOGETHER



John **BOLES**



Barbara
STANWYCK

**A MESSAGE TO
GARCIA**

SUN MON TUES

CHURCHES

COMMUNITY CHURCH—The Rev. W.W.Sloan, pastor
9:45 a.m. Church school.
11:00 a.m. Morning worship.
7:00 p.m. The last of a series of seven studies of great Bible characters, entitled "Paul."

The Rev. and Mrs. Sloan will return for July 31 services after three weeks in Oregon.

CATHOLIC CHURCH—Father A. Farrelly, pastor
Bishop Charles D. White of Spokane will be at St. Benedict's church for Confirmation at 3 p.m. Sunday, July 26.

The regular order for services is Sunday mass will be said in Mason City at 8 a.m. and in Grand Coulee at 10 a.m. Confessions will be heard Saturday evening and Sunday before mass.

Daily classes of religious instruction for children, begun three weeks ago, are completed this week.

THE CHURCH OF JESUS CHRIST OF LATTER DAY SAINTS will conduct Sunday School in the Mason City high school building at 10:30 a.m.

The power house on the west side will require an estimated 190,000 yards of concrete for the present contract.

FATIGUE CUTS AT YOUR SAFETY CONSCIOUSNESS
SO KEEP AWAKE ON THE JOB--ALWAYS

The five steps in the 685-foot cut to slice into the west abutment for the power house will reach the axis or vertical edge of dam concrete. Some building up by the use of concrete may be done for the foundation near the axis.

The best that the United States can do in rating high mountain peaks is to rank 24th in the North American continent. Mt. Whitney in California is 14,496 feet high, but Canada has 10 that are higher, Alaska has eight, and Mexico has five that are higher. Mt. McKinley in Alaska takes first place with an altitude of 20,299 feet.

BASEBALL

THE MASON CITY BEAVERS WILL TRY SOMETHING new next Sunday by finally clashing with Rosalia in an Idaho-Washington league game. Held away from home, this will be the first meeting of the year between the nines.

Although Votaw struck out 10 Bohemian Brewers last Sunday, the Beavers fell before the league leaders 10 to 4.

A double-header with the Spokane club was not held because of a conflict with a scheduled second game between the Brewers and the Van Dyke Colored Giants.

FOUND--a ring of automobile keys on the west side Tuesday. Owner can call at the Mason City police department.

FOUND--a child's purse. Call at Mason City fire station.

HOT WEATHER DEMANDS MORE FREQUENT BATHS--
KEEP CLEAN!

Brett pit has turned out 2,100,000 yards of sand and gravel for the building of the dam. Of this amount 1,250,000 yards have gone for concrete. The waste pile received the balance.

The machine shop has a press capable of exerting a pressure of 486 tons.

The dry dock on the west side of the river will mark the scene for the later building of five barges for cross-river, cofferdam construction, according to recent plans.

MASON CITY

Phone 72 **LAUNDRY** Phone 72

Restore the original newness,
lustre and sheen to your
summer garments
with
improved
DRY CLEANING
methods
Cleaning, pressing, sponging, alterations, repairs.....



"I WISH YOU'D QUIT SMACKING YOUR LIPS
WHEN YOU EAT!!"



PREPARE SECOND WEST FEEDER

Initial preparation has begun on the installation of a second feeder for conveyor work on the west side. This is for location toward the north end of the cofferdam. Two sections of conveyor will extend 850 feet to the main 60-inch belt. The first section will reach 150 feet to block 31 and the second will continue across the block. Last Sunday use of the south feeder was not done because shovels were not then available. Removal of the berme or earth banks at the cofferdam is the first step leading the way to river diversion. More than one million yards will go up the conveyor from the west area.

-oCo-

SECOND GRANDSTAND SOON

Arrival of necessary lumber for the construction of a grandstand by the bureau of reclamation on the east vista point near the eastaix is expected immediately. Arrival will determine date of construction. The east stand will duplicate the west, now in use, and will also have a radio receiving station for music, outstanding news and sporting events, and can play phonograph records when desired. The broadcasting unit will also be used by two speakers to explain the Grand Coulee dam to all interested. The loud speaking system of the west stand can be heard across the river.

-oCo-

YOU DON'T DARE LET UP ON NAILS

-oCo-

THE HEAT WAVE OF THE WEEK BEGAN ITS high rise Sunday to reach 106, according to Company thermometers. Up to Thursday, the following two days reached a seasonal peak of 108 degrees. Minimum temperatures for a day hold to the early 60-plus mark. High marks are reached about four o'clock during the day.

-oCo-

WATER AT EAST ROCK LEVEL

Water in the east pit had dropped 70 feet by Wednesday night, ready to expose first level bedrock. Last blasting on east bedrock reduced four feet from the 905 level for first bedrock.

No sustained pumping by the five pumps near the cofferdam has been practiced because of leaking of the cofferdam and the necessity for strengthening the berme before removal of water continued. Prolonged pumping may not be carried on until water in the river has passed the 950 mark.

-oCo-

BORN-----at the Mason City hospital

July 17, to Mr. and Mrs. C. J. Brown of Grand Coulee, a son.

July 17, to Mr. and Mrs. Curtis Waxberg of Grand Coulee Heights, a son.

July 20, to Mr. and Mrs. Philip R. Aulton of Coulee Center, a daughter.

July 22, to Mr. and Mrs. Buster Jones of Coulee Heights, a son.

-oCo-

FOUND----- Wedding ring. See Fred Borella at the Mason City laundry.

-oCo-

WORK ON DIVERSION CHANNEL

While much interest centers about the disappearance of west-side berme to Rattlesnake canyon, two 2-yard shovels began work last Saturday by feeding dirt to three 12-yards trucks for a protective dike south of the cofferdam. The dike helps to shape a channel for later water diversion over the west-side.

-oCo-

ED LINDMAN, COLUMBIAN ARTIST, WILL RETURN Monday for work with a partner, the former Miss Louise Cook of the Coulee Trading company fountain. The couple will make their home in Mason City.

-oCo-

The 48-hour release is in effect on blocks 32 to 39.

COULEE TRADING CO

FRI. SPECIALS

SAT.

RUMP ROAST BEEF 28¢#

ROLLED PRIME RIB 28¢#

RIB STEAK 25¢#

SIRLOIN STEAK 28¢#

BROILERS

FRYERS

HENS

WE SELL QUALITY
MEATS ONLY

MEAT DEPT